SADDLE CREEK RESTORATION &

ALTERNATIVE MITIGATION PROJECT

PHASE 1 : CONCEPTUAL PLAN

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FLORIDA DEPARTMENT of ENVIRONMENTAL PROTECTION

BUREAU of MINE RECLAMATION

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INTRODUCTION

The Saddle Creek Restoration & Alternative Mitigation Project is intended as a long-range, progressive process which utilizes mined land reclamation, permitted environmental impact mitigation, land planning, and landscape retrofitting in combination to replace a disrupted system with one which is functionally restored. The Saddle Creek watershed is located in Polk county between Lakeland and Auburndale and comprises approximately 58 square miles. This watershed is the northern-most sub-basin of the Peace River and originally extended into the lower extremity of the Green Swamp (Figure 1). Phosphate mining occurred on approximately 70% of the land area prior to 1975 when reclamation became mandatory. Interstate Highway 4 was constructed across the watershed's upper reaches and effectively restricts ecologic or hydrologic connections with the Green Swamp. The purpose of this Phase 1 : Conceptual Plan is to outline and explain the elements enabling this watershed restoration approach; and to outline and explain the proposed project-phase structure intended to assure implementation and accountability.

Concerns regarding the disruptive effects of phosphate mining in central Florida resulted in legislation requiring the inventory and evaluation of those lands disturbed by phosphate mining prior to July 1, 1975. Throughout the 1970's the Legislature gradually revised the regulatory framework which pertains to reclamation of all age-categories of phosphate mined lands. The Florida Department of Natural Resources (now Department of Environmental Protection), through the Phosphate Land Reclamation Study Commission and Zellars-Williams, Incorporated, was directed to inventory mining-disturbed lands, study the reclamation of these lands, and recommend appropriate additional legislation. In 1978 the framework of the current Non-Mandatory Phosphate Reclamation grants program was created to effectuate the reclamation of these pre-1975 lands. In 1980 Zellars-Williams, Inc. published the

Evaluation of Pre-July 1, 1975 Disturbed Phosphate Lands (a.k.a. "the Zellars-Williams Report") which was incorporated into Chapter 62C-17, Florida Administrative Code, Master Reclamation Plan for Lands Disturbed by the Severance of Phosphate Prior to July 1, 1975 (Figure 2). In addition to it's complex evaluative functions, the Zellars-Williams Report recommended the functional restoration of six regional watersheds which had been heavily impacted by mining. The Saddle Creek watershed was one recommended for restoration (Figure 3).

In early 1994, it was recognized by concerned agencies that the convergence of several planned linear and land development projects within the watershed provided a unique opportunity to restore ecologic and hydrologic functions to significant portions of the Saddle Creek watershed through alternative mitigation in combination with the Non-Mandatory reclamation grants program. On November 28, 1995 a Memorandum of Understanding facilitating the foundational core of the overall project was agreed to by the U.S. Army Corps of Engineers, Department of Environmental Protection, Department of Transportation, Game & Fresh Water Fish Commission, and the Southwest Florida Water Management District.

HISTORY

In 1993 representatives of the Department of Environmental Protection (DEP), Department of Transportation (DOT), and Game & Fresh Water Fish Commission (GFC) began discussions regarding the number of linear and land development projects, all potentially requiring mitigation, which surround the core of the Saddle Creek watershed. This watershed core (Tenoroc Fish Management Area & Williams Acquisition Holding Company's Saddle Creek Mine / North, see Figure 4) also correspond to the most heavily mining-impacted and unreclaimed portion of the watershed. Potential involvement in the Saddle Creek project through mitigation requirements for planned and ongoing development projects includes Developments of Regional Impact for the Bridgewater, Williams Acquisition Holding Company (WAHC), and Polk Commerce Center properties, as well as wetland and stormwater permitting for

Interstate Highway 4 (I-4) renovations, the Polk County Parkway, a natural gas pipeline, and a major electric powerline (Figure 5). The Tenoroc Fish Management Area consists of the 6,040 acre former Coronet phosphate mine, which is now state-owned and managed by the GFC.

In April of 1994, representatives of DEP, GFC, and Florida's Turnpike District of DOT met with the Southwest Florida Water Management District (SWFWMD) and the U.S. Army Corps of Engineers (ACOE) to begin discussing an alternative mitigation proposal for the Polk County Parkway. Wetland impact assessment, management of stormwater, mitigation planning, and processing of SWFWMD and ACOE permits proceeded through the standard processes for the road project. In April, 1995 interagency concensus was reached regarding acceptable parameters for implementing an alternative mitigation strategy. The alternative mitigation strategy was incorporated into the SWFWMD and ACOE permits and the interagency concensus was ratified by the Polk County Parkway Interagency Memorandum of Understanding (MOU) completed on November 28, 1995.

Although the current interagency MOU is restricted to mitigation required by the Polk County Parkway road project, a mitigation and restoration strategy plan for the watershed was incorporated by reference and both have become the anchor and pivotal-point for more expansive planning. With the MOU's alternative mitigation strategy ratified, coordination with the Non-Mandatory Phosphate reclamation program was considered and incorporated into the project. On February 18, 1997, the Non-Mandatory Land Reclamation Committee recommended approval of reimbursement grant funding from the Non-Mandatory Land Reclamation Trust Fund for eligible non-mandatory parcels within the Tenoroc Fish Management Area. These historical events now enable further progressive implementation and explanation of the Saddle Creek project through the following Phase I : Conceptual Plan.

GENERAL GOALS & OBJECTIVES

From the southern boundary of the Tenoroc property northward almost to I-4, the original watershed landscape has been replaced by a landscape which has been mined and altered for disposal of waste clay and sand; as well as catchment, retention, recirculation, and direction of water. Currently, the potential outflow from this 12,000-plus acre portion of the former watershed is significantly impounded and produces minimal discharge to the remnant creek via two unmaintained ditches. Therefore, a primary project objective is the replacement of appropriate quantity and quality of flow to Saddle Creek and thus enhanced flows to the Peace River.

South of the Tenoroc property the watershed has also experienced significant mining impacts. These impacts in combination with urban development have resulted in floodplain disruption and encroachment rather than natural water attenuation. Periodic flooding and urban stormwater drainage problems plague this portion of the watershed despite the significant impoundment of the upper watershed. The replacement of the appropriate amount and periodicity of flow from the upper watershed through reclamation and mitigation must be planned so that flooding is not exacerbated to the south. "Restoration of the watershed" therefore becomes a much more complicated exercise than simply replacing the watershed as it existed in the pre-mining state circa 1940.

Prior to all the development impacts of the last several decades, the Saddle Creek watershed wetlands and floodplain served as a primary ecological connection between the Peace River and the Green Swamp. Reclamation and wetland mitigation within all available portions of the watershed is being planned so that, in addition to drainage restoration, a simultaneous benefit of habitat replacement and ecological connectivity is achieved.

Wetland impacts caused by the Polk County Parkway road construction require mitigation in the form of reconstruction of a prescribed number of acres of various wetland types. The construction-impacted wetland acres were spread throughout a largely urban landscape along the route of the new roadway.

Rather than replace these impacted wetlands back in the same disjointed setting, the appropriate mitigation acres will be replaced in a context which includes extensive, adjacent habitats managed for long-term viability and protection.

Furthermore, replacement of the wetland mitigation acres within the Tenoroc Fish Management Area, as well as the overall drainage and habitat restoration of the watershed, will enhance regional opportunities for various outdoor recreation activities. At this time an extensive system of hiking and horse trails are undergoing planning within the watershed. Upon completion of the planned restoration activities, fishing, hunting, bird-watching, and environmental education opportunities will be significantly increased at Tenoroc and throughout the watershed.

In order to achieve the stated goals and objectives of functional watershed replacement, an orchestrated effort has been set into motion which attempts to coordinate hitherto disparate regulatory processes while synthesizing intricate needs and on-ground realities into a common-sense, comprehensive implementation strategy. Rather than creating more chaos in a highly disrupted system through lack of coordination, the implementation strategy relies upon concentricity and a phasic approach. The following three sections attempt to define the "tools", the sequencing of their use, and the coordination of their use that will be utilized to facilitate restoration of the watershed core.

STRATEGY IMPLEMENTATION

Permit conditions of the Polk County Parkway Permit (Exhibit A of the Polk County Parkway MOU) define the acreage and type of wetlands which are required as mitigation for wetland impacts caused by roadway construction. Condition #1 states that " creation / restoration and management of at least 84.73 acres of forested wetlands and 37.28 acres of herbaceous wetlands" shall be accomplished. The condition further states that "This mitigation shall be located, if feasible, in the Saddle Creek sub-basin in a manner consistent with the conceptual mitigation concepts put forth in the February 10, 1995 memorandum entitled "Proposed Application of Ecosystem Management, Greenways, and Mitigation Concepts Within the Saddle

Creek Watershed of the Peace River" (provided as Attachment B [MOU]) or the March 1994 report entitled "A Three-Part Regional Habitat Mitigation Plan as the Foundation for the Southern Phosphate District of Florida's Integrated Habitat Network" (provided as Attachment C [MOU])." Condition #3 states that "at least 5.67 acres of forested wetlands and 34.27 acres of herbaceous wetlands" shall be created and managed "in the Alafia River watershed or in an area providing direct benefit to the Alafia River watershed preferably in a manner consistent with the conceptual mitigation concepts put forth in the March 1994 report".

In January, 1997 unanticipated road construction impacts caused the addition of 2.51 acres of forested wetland mitigation through approval of the Polk County Parkway-Kent Access Road Permit. These were incorporated into the Polk County Parkway MOU, and the current minimum wetland mitigation acreage required for replacement within the Saddle Creek project stands at 87.24 acres of forested wetlands and 37.28 acres of herbaceous wetlands (Total = 124.52 acres). Through the conceptual planning and subsequent design phases of the Saddle Creek project, determination will be made regarding the disposition of the mitigation acres required for creation "in the Alafia River watershed or in an area providing direct benefit to the Alafia River watershed". If it is determined that these acres can most effectively be replaced within the Tenoroc F.M.A., or Saddle Creek watershed, the mitigation acreage will rise to 92.91 acres of forested wetlands and 71.55 acres of herbaceous wetlands (Total = 164.46 acres).

As stated earlier, drainage within the upper 12,000 acres of the Saddle Creek watershed (hereto called the watershed-core and/or the Tenoroc F.M.A. & Williams Aquisition Holding Company [WAHC] properties, Figure 4) is a significantly nonfunctional remnant of former mining operations. At the present time a ditch on the eastern extremity and a ditch on the western extremity of the core serve to collect and transport the collective sum of run-off. These two main ditches converge into one and exit the core area at the southern Tenoroc boundary. Within the interior of the core properties, unreclaimed clay settling areas and mine-pits are interconnected by a circuitous and mostly delapidated system of conveyances and structures. Early-on it was recognized by the project participants, that more information was needed on the

current hydrologic state of the core prior to effective comprehensive restoration planning. Furthermore, it was realized that refined topographic information, which can only be gained through preliminary reclamation, was another necessary component of the planning equation. Synthesization of the pre-reclamation hydrology and topography (post-mining) with clay consolidation parameters is necessary to model and plan the post-reclamation hydrology and landscape.

In early 1996 the Florida Institute of Phosphate Research (FIPR) approved funding a $ 517,000 research grant proposal from the University of South Florida (USF) and the U.S. Geological Survey (USGS) to provide a hydrologic analysis of the entire Saddle Creek watershed north of Lake Hancock. This hydrologic analysis, in addition to gathering data critical to restoration planning, will provide a large-scale field test of the reclamation hydrology computer model now commonly known as the "FIPR Hydrology Model". Application of the model on a large scale promises refined calibration and thus enhanced application throughout the phosphate district. During the cooperative development and review of this proposal, it was recognized that the watershed-core might need more immediate and specialized scrutiny than that provided by the watershed-wide analysis. To provide the more specific scrutiny of the watershed-core , the DEP contracted directly with USF and USGS using $ 200,000 provided by Condition #2 of the Polk County Parkway Permit. Condition #2 states that "the Turnpike District shall conduct, or contract with a suitable third party to conduct, a hydrologic study to determine the feasibility of conducting the mitigation contemplated in the memorandum (MOU)". These concentric analyses are currently ongoing.

Basic landform and landscape restructuring for a portion of the overall watershed and a major portion of the watershed-core will be effectuated through the Non-Mandatory Phosphate Reclamation Program.
The WAHC property within the watershed-core (south of I-4 & north of Tenoroc) contains eleven eligible non-mandatory parcels with a combined total acreage of approximately 4,035 acres. At this writing, all but one of the WAHC parcels are in varying stages of reclamation. The WAHC and DEP are working cooperatively to plan and execute this reclamation in a manner which is consistent with the project goals and objectives. The Tenoroc Fish Management Area contains five eligible non-mandatory parcels with a

combined total acreage of 1149 acres. The Non-Mandatory Land Reclamation Committee conceptually approved funding for all remaining Tenoroc eligible parcels; recognizing the concerted interagency effort through this project and the need for Saddle Creek restoration. Funding levels within the Non-Mandatory program however, allowed that only the three largest of the five Tenoroc parcels be funded for fiscal year 1997-98. The portion of the Saddle Creek project south of the watershed-core (south boundary of Tenoroc to Lake Hancock) contains sixteen eligible and ineligible parcels with an approximate combined acreage of 2,600 acres. These parcels are in various stages of active or natural reclamation; and are incorporated into the overall project through landowner cooperation with the strategic watershed plan.

Due to the complexity of the on-ground situation and coordination of several bureaucratic processes, a phased planning, plan approval, and implementation approach is proposed for the Tenoroc portion of the watershed-core. Beyond this Phase 1: Conceptual Plan, the next consecutive phases are anticipated to be: Phase 2: Preliminary Design Plan, Phase 3: Final Design Plan, Phase 4: Construction, and Phase 5: Monitoring & Management. The reclamation / mitigation planning, design, and construction will be accomplished by hiring one engineering consulting firm experienced in the various stages of this type project. Staff of the DEP Bureau of Mine Reclamation will represent the State of Florida in overseeing all stages of the project within the Tenoroc property. A Request for Statements of Qualifications (RFSOQ) (a.k.a. "Requests for Proposals" in the Polk County Parkway MOU), pursuant to Chapter 287.055, Florida Statutes, "Consultants Competitive Negotiation Act", will be utilized to find and hire a suitable consulting firm. Reclaimed landform, landscape, and hydrology information, as well as proposed post-reclamation land use information, from the watershed-core portion of the WAHC property will be integrated with the USF & USGS Hydrologic Analysis information for the watershed-core to better facilitate the combined reclamation / mitigation design on the Tenoroc portion.

Review and approval of the Phase 1-5 Plans for the Tenoroc portion of the watershed-core shall be performed pursuant to the interagency committee structure defined within the Polk County Parkway MOU. The MOU provides that there will be a Selection Committee and an Advisory Committee. The Selection

Committee shall consist of the DEP, ACOE, and SWFWMD; and "shall assist in the development of the request for statements of qualifications (RFSOQ), review and evaluate all proposals and bids received by the DEP in relation to performing the project(s) and shall each have equal input into the selection of the contractor to be awarded the requested services or goods." The Advisory Committee (a.k.a. Upper Peace River Ecosystem Planning Committee) "shall consist of representatives of each party to this MOU and shall also consist of representatives of the following entities: affected counties, affected Regional Planning Councils and other parties as added pursuant to this paragraph. The Advisory Committee shall assist and make recommendations in relation to the coordination, planning and implementation of the project(s)."

CORE PLAN PHASES

As stated in the Introduction, the Phase 1: Conceptual Plan is to outline and explain the elements enabling this watershed restoration approach; and to outline and explain the proposed project-phase structure intended to insure implementation and accountability. The unique and complex nature of this portion of the overall Saddle Creek project necessitates a clear, written explanation which then can be used for a variety of purposes. Some anticipated uses of the Phase1: Conceptual Plan include (1) general guidance and introduction to the project RFSOQ, (2) documented justification for final approval of Non-Mandatory program reimbursement funding of the eligible Tenoroc parcels, (3) documented explanation to the DEP, Division of State Lands regarding the interagency roles on the state-owned Tenoroc property, (4) documented explanation of the project plan and accountability framework for all involved agencies and the state legislature, and (5) a project outline for presentation to other interested parties.

The Phase 2: Preliminary Design Plan will be generated by the engineering firm chosen as a result of the Request for Statements of Qualifications (RFSOQ) process. The MOU signatories will work with the selected firm to assure that all the necessary statutory requirements of reclamation and mitigation, intended longterm management needs and uses, and project goals and objectives are incorporated into the preliminary design plan. The MOU Advisory Committee will be provided the opportunity to comment on the draft Phase 2: Preliminary Design Plan prior to final approval by the MOU signatories. Likewise, it is

anticipated that the Phase 3: Final Design Plan will follow the same course of generation, review, and approval.

Phase 4: Construction will be the responsibilty of the selected engineering firm and the DEP Bureau of Mine Reclamation . A landowner representative for construction management oversight, experienced in this type of work, will be selected from staff of the DEP Bureau of Mine Reclamation . This landowner representative will regularly report to the MOU signatories and the MOU Advisory Committee on construction progress.

Phase 5: Monitoring & Management is anticipated to be a shared task. The selected engineering firm will perform reclamation and mitigation monitoring and management, with landowner representative oversight (DEP), until such time that the reclamation and mitigation are deemed to be functionally established. The DEP will write a draft monitoring plan which will be reviewed and approved by the MOU signatories; and subsequently adopted into the RFSOQ, Phases 3 & 4: Design Plans, and a written Phase 5: Monitoring & Management Plan. The GFC will write the draft management portion of the Phase 5: Monitoring & Management Plan and will be responsible for long-term management after the sites have been deemed to be functionally established.

FINANCE & ACCOUNTING

The combination of hitherto separate regulatory processes is complex enough; but when this combination includes the sequential use and accounting of separate funding sources, the complexity of the task expands. Staff of the DEP Bureau of Mine Reclamation now regularly deal with permitting, reclamation, construction inspection, reimbursement inspection, application accounting prior to grant approval, bidding and contracting procedures, reimbursement accounting, and program auditing. It is for these reasons that bureau staff is qualified to provide oversight of the project's planning, design, construction, accounting and auditing aspects. The Non-Mandatory Reimbursement Section of the bureau will be in charge of contract

development and monitoring, project accounting and auditing, development of project reporting mechanisms, and providing financial reports to other agencies and interested parties.

The bureau's Environmental Resources Section / Bartow Field Office will fulfill the DEP construction oversight role through inspection and reporting of construction progress, development of inspection reporting mechanisms, and coordination with the designated land-managers (GFC) and the MOU signatories. The bureau's Technical Services Section will provide engineering and hydrogeological review expertise throughout the planning, design, and construction phases of the project. General administration of the overall project will be accomplished by the Environmental Resources Section.

Current funding sources for the watershed-core reclamation and mitigation consist of the following:

Polk County Parkway Permit Condition #1 (Saddle Creek)	$ 3,500,000.00
Polk County Parkway Permit Condition #3 (Alafia River)	$ 1,800,000.00
Polk County Parkway Permit-Kent Access Road	$ 105,420.00
Non-Mandatory Lands Reclamation Trust Fund (Tenoroc)	$ 4,303,096.00
Game & Fresh Water Fish Commission	$ 50,000.00
Cumulative Total (to date)	$ 9,758,516.00

CONCLUSION

Concerns regarding Florida's ever expanding population and the resulting pressures on environmental resources, especially water, are omnipresent in the west-central Florida area. Restoration and maintenance of quantity flows and levels, as well as water quality, have become elements critical to the economic and environmental well-being of the region. In that last regard, this project provides a new paradigm template as a possible solution to problems once perceived as unmanageable and unresolvable.

Current members of the Upper Peace River Ecosystem Planning Committee

(Polk County Parkway Interagency MOU Advisory Committee)

Raymond Ashe Jr. - Florida Department of Transportation, Florida's Turnpike District

Jim Wilt - Florida Department of Transportation, District One

Paul Schmidt - Post, Buckley, Schuh & Jernigan, Inc. - Consultants to FDOT, Turnpike District

Bill Lynn - Post, Buckley, Schuh & Jernigan, Inc. - Consultants to FDOT, Turnpike District

Mike Nowicki - U.S. Army Corps of Engineers

Danon Moxley - Florida Game & Fresh Water Fish Commission, Div. of Fisheries

Tim King - Florida Game & Fresh Water Fish Commission, Div. of Fisheries

Lothian Ager - Florida Game & Fresh Water Fish Commission, Div. of Fisheries

Dawn Turner - Southwest Florida Water Management District

Clark Hull - Southwest Florida Water Management District

David Carpenter - Southwest Florida Water Management District

Sid Flannery - Southwest Florida Water Management District

Gerald Morrison - Southwest Florida Water Management District

Bud Cates - Florida Department of Environmental Protection, Mine Reclamation

Jack Woodard - Florida Department of Environmental Protection, Mine Reclamation

Jim Mills - Florida Department of Environmental Protection, Mine Reclamation

Orlando Rivera - Florida Department of Environmental Protection, Mine Reclamation

Kent Williges - Florida Department of Environmental Protection, Mine Reclamation

Steve Partney - Florida Department of Environmental Protection, Mine Reclamation

Pat Fricano - Florida Department of Environmental Protection, Ecosystem Management

Steve Thompson - Florida Department of Environmental Protection, Southwest District

Linda Broz - Florida Department of Environmental Protection, Intergovernmental Programs

Brian Sodt - Central Florida Regional Planning Council

Jeff Spence - Polk County, Natural Resources Division

Ken Murray - USDA Natural Resources Conservation Service

Dr. Steven Richardson - Florida Institute of Phosphate Research

Dr. Mark Ross - University of South Florida, Department of Civil Engineering

B.R. Lewelling - U. S. Geological Survey, Water Resources Division

Dr. Mark Brown - University of Florida, Center for Wetlands

Sandra Russo - University of Florida, Center for Wetlands

George Shahadi - The Williams Acquisition Holding Company

Current Members of the Polk County Parkway Interagency MOU - Selection Committee

Bud Cates - Florida Department of Environmental Protection, Mine Reclamation

Mike Nowicki - U.S. Army Corps of Engineers, Permitting

Dave Carpenter - Southwest Florida Water Management District, Env. Res. Permitting

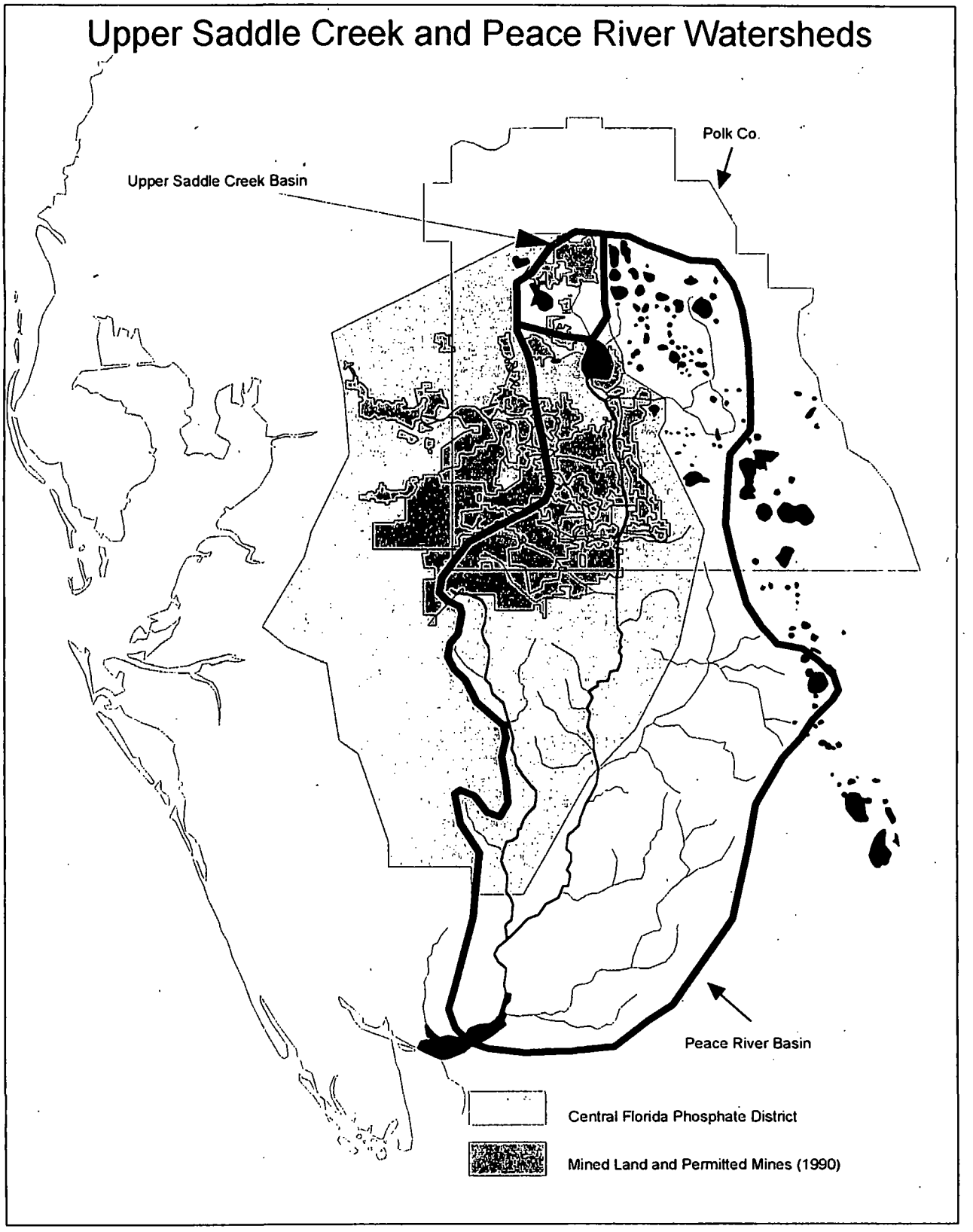
Upper Saddle Creek and Peace River Watersheds
Polk Co.
Upper Saddle Creek Basin
Peace River Basin
Central Florida Phosphate District
Mined Land and Permitted Mines (1990)

Figure 1

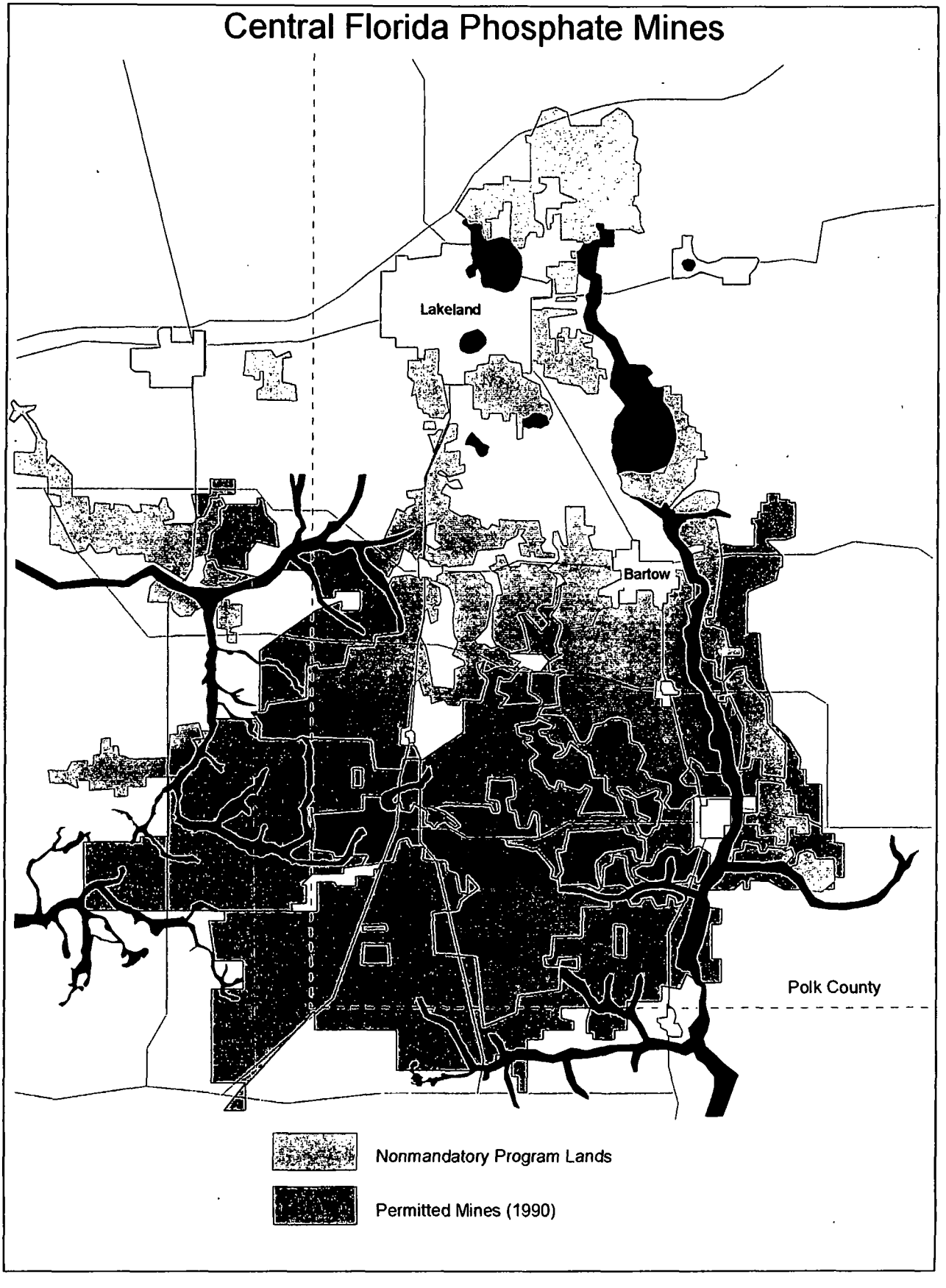
Central Florida Phosphate Mines
Lakeland
Bartow
Polk County
Nonmandatory Program Lands
Permitted Mines (1990)

Figure 2

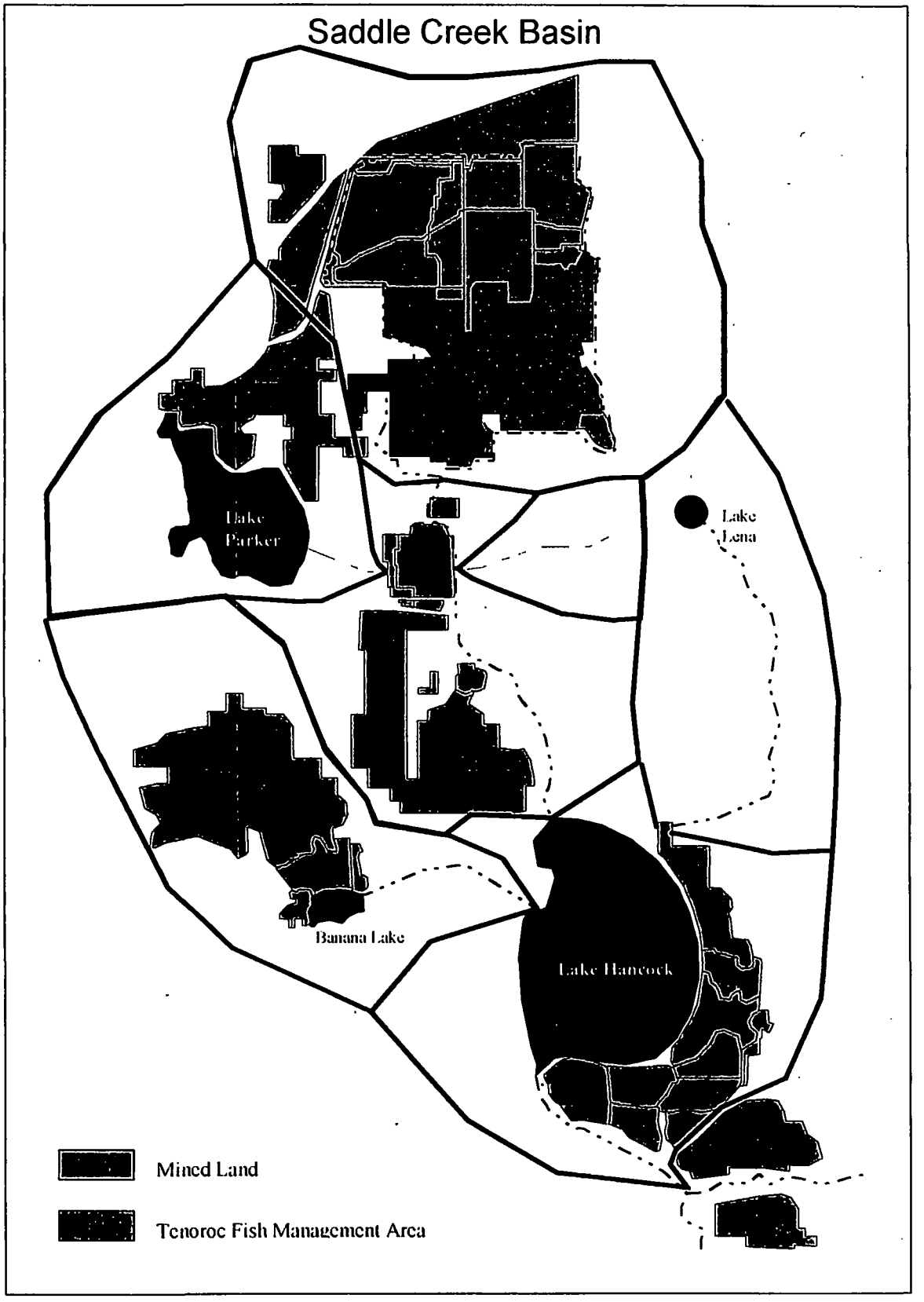
Saddle Creek Basin
Lake Parker
Lake Lena
Banana Lake
Lake Hancock
Mined Land
Tenoroc Fish Management Area

Figure 3

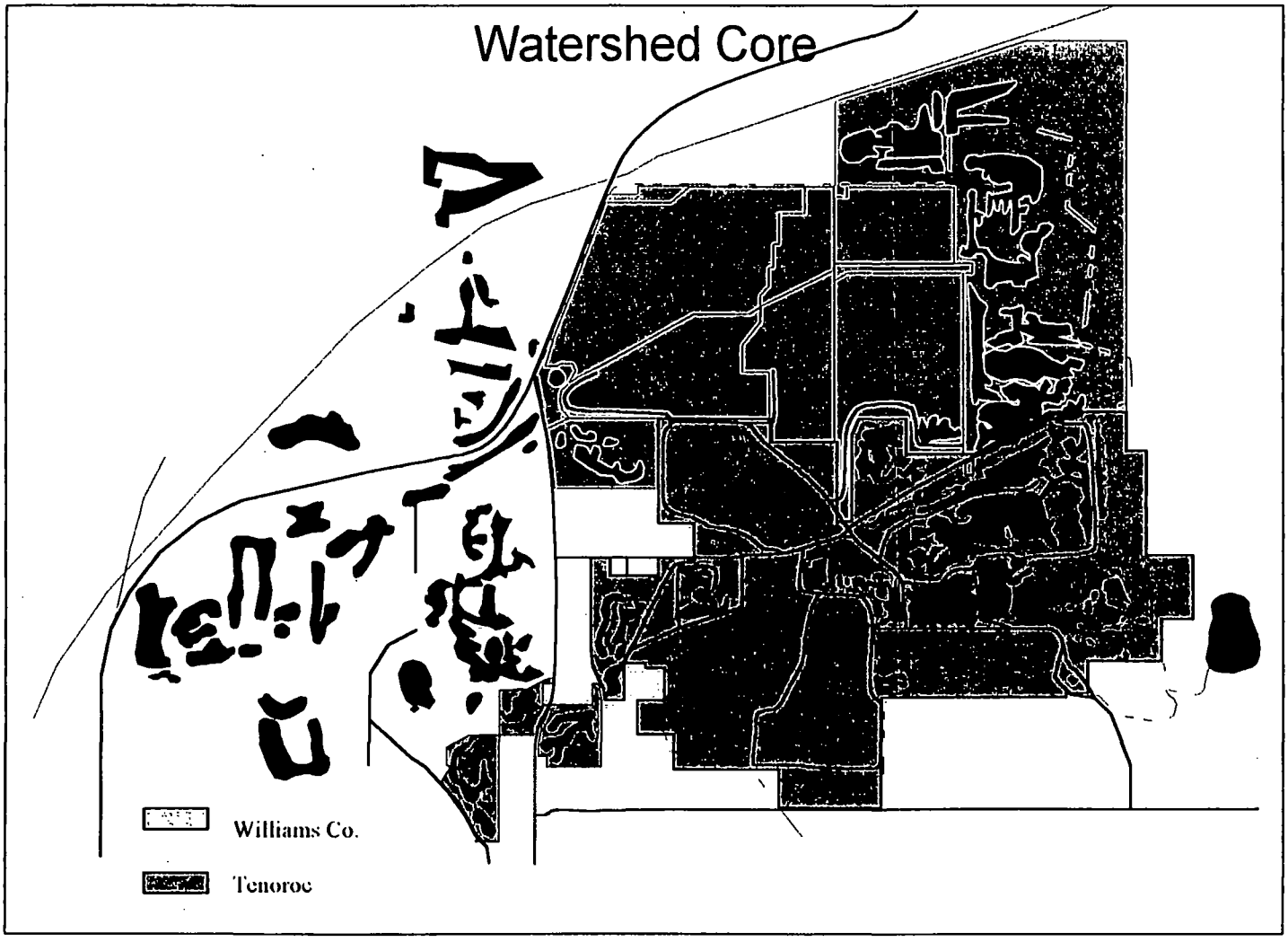

Figure 4

Development projects presently being planned in the upper Saddle Creek basin.

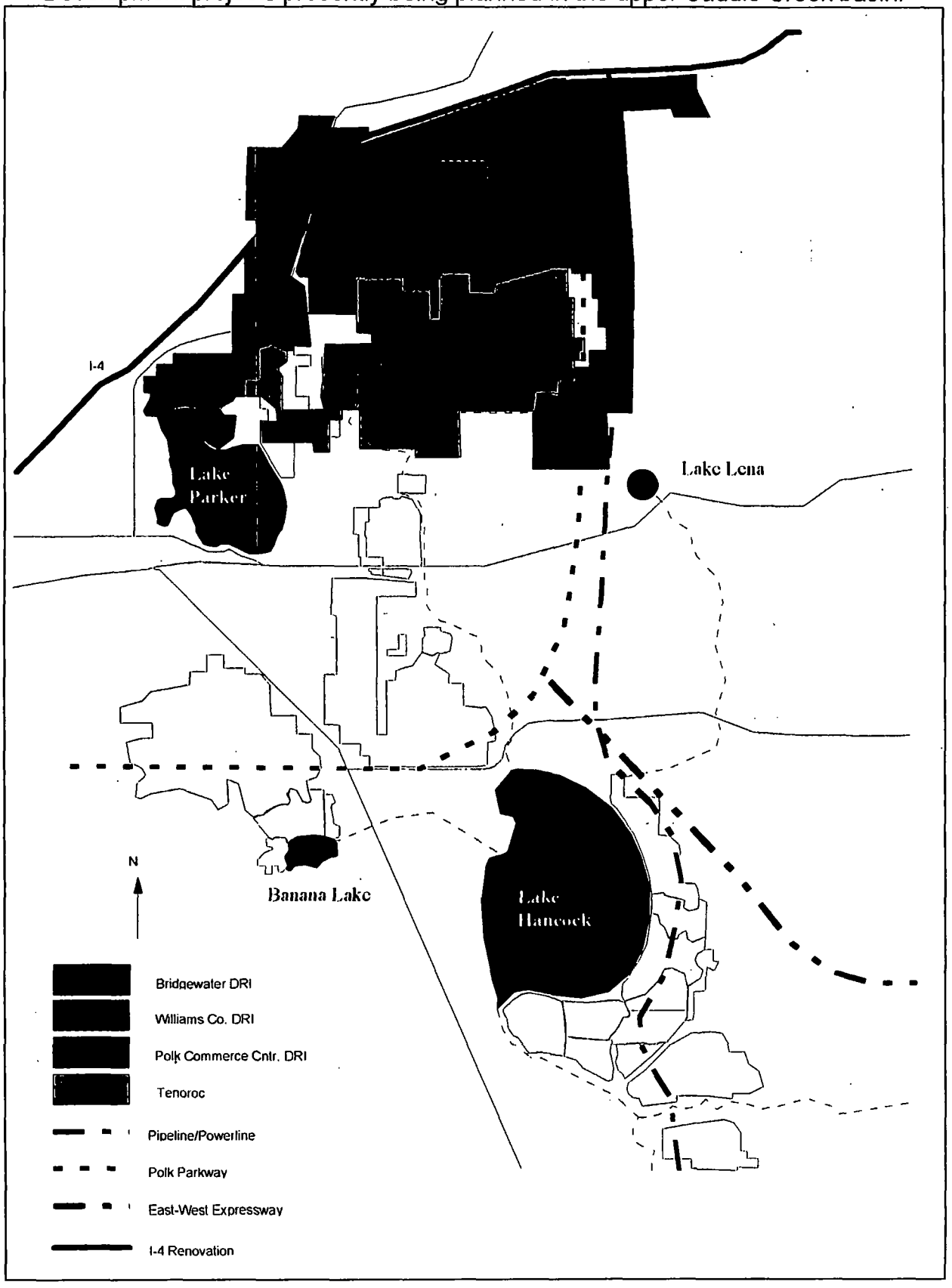

Figure 5